SUMMARY OF CALFED BAY-DELTA PROGRAM ANALYSIS STRATEGY FOR AQUATIC/WETLAND HABITAT RESTORATION - SUISUN MARSH - CONVERSION OF LEVEED LANDS TO TIDAL WETLANDS

One of the actions of the proposed CALFED Bay-Delta Program (CALFED) is to open a portion of leveed land in Suisun Marsh to tidal action to provide additional tidal aquatic and wetland habitat. Formulation of general and specific plans for such restoration, as well as analysis of potential effects of such actions, requires various types of information on the marsh and the surrounding aquatic and upland area. Existing habitat and historical habitat conditions and locations, habitat quality, land use, water quality, infrastructure, and locations of critical habitat and special-status species are some of the information that would be helpful in evaluating and planning habitat restoration in the marsh.

Much of this type of information is displayed best in a geographic framework, lending itself to analysis and display in a Geographic Information System (GIS). Individual displays and various combinations or overlays allow spatial analyses of the information. For example, determining how many acres of habitat to target for restoration requires data on the existing, and hopefully historical, acreages of all habitat types. Information on existing distributions of special-status species, either in leveed or unleveed lands, would help to avoid or target specific lands for restoration. Knowing the locations of existing habitat is important if a goal is to create habitat corridors for fish and wildlife. Data on depth of leveed lands are important to predict what types of habitat to expect following opening of levees, or the potential costs of dredging or filling to create target habitats.

Another consideration for Suisun Marsh is salinity patterns in surface water and soil. Restoration of tidal habitats in areas of higher salinity surface water may be contradictory to restoring freshwater habitat for such species as Delta smelt. Existing levels of soil salinity will determine potential to revegetate with wetland plants.

Land status and ownership information may help guide CALFED staff in determining which land units to target for restoration. Habitat use and distribution and abundance of aquatic and terrestrial plant and animal species within the marsh may also be helpful in targeting specific areas for restoration. Some existing managed wetlands may be important to special-status species such as the salt marsh harvest mouse or certain waterfowl. Presence of these species may preclude such habitat from restoration.

Some lands are supplied by water diversions that may or may not be screened to keep fish out of diverted water. Knowing which diversions are screened or unscreened may help to plan specific areas for restoration.

At the programmatic level of assessment in CALFED Phase II, GIS may be a valuable tool to efficiently and effectively assess benefits and impacts of habitat restoration.